REMARKS

In the Office Action, the Examiner rejected claims 1-21 under 35 U.S.C. 102(e) as being anticipated by Suumaki et al. (US Patent Application Publication 2001/0007137 A1, "Suumaki"). Applicants respectfully traverse this rejection.

5   The present invention relates to error recovery using Automatic Retransmission reQuest (ARQ) operations both at a physical layer and a link layer operating on a single receiver (or on a single transmitter). In particular, claim 1 requires that "when the physical layer frame is error free, acknowledging to the transmitter a successful receipt" and "when the physical layer frame is not error free, negatively acknowledging to the transmitter a successful receipt." These operations

10   equate to ARQ operations on the physical layer. Further, claim 1 requires link layer ARQ operations that are responsive to successful (or unsuccessful) receipt of packet data units from the physical layer. In particular, claim 1 requires that, in receiving a packet data unit by the link layer, "when the packet data unit is lost, delaying an automatic retransmission request for a lost packet data unit for a delay period corresponding to an error recovery operation at the physical

15   layer for the lost packet data unit." Coordination between ARQ operations of the physical layer of the link layer is achieved by delaying the automatic retransmission request by the link layer for the delay period (that corresponds to the physical layer error recovery operations).

Suumaki addresses error detection and error recovery operations. In contradistinction to the requirements of claim 1 that concern interaction between ARQ operations of both the physical layer

20   and the link layer, Suumaki addresses interaction between two sublayers of Layer 2=Data Link Layer. Suumaki identifies four sublayers of Layer 2=Data Link Layer as: (1) the Media Access Control (MAC) sublayer; (2) the Radio Link Control (RLC) sublayer; (3) the Packet Data Convergence Protocol (PDCP) sublayer; and (4) the Broadcast/Multicast Control (BMC) sublayer. In particular, Suumaki concerns interaction between the RLC sublayer and the PDCP sublayer, both

9

of these sublayers being part of Layer 2=Date Link Layer. Suumaki's RLC sublayer operations include:

- establishing and releasing the RLC connection. Page 2, paragraph [0012]

- providing transparent data transfer of RLC Service Data Units (SDUs) produced by the PDCP sublayer. Page 2, paragraph [0013]

- performing unacknowledged data transfer of information to a receiver so that all correct RLC SDUs are transmitted to the upper PDCP sublayer (of the receiver) immediately only once. page 2, paragraph [0014]

- performing acknowledged data transfer of information to the receiver in a secure manner using retransmissions so that all correct RLC SDUs that have arrived are transmitted to the PDCP sublayer (from the RLC sublayer) only once in the correct order or in the order of arrival. page 2, paragraph [0015]

- support quality of service settings. page 2, paragraph [0016]

- notifying the PDCP sublayer of unrecoverable errors in RLC SDUs when the RLC sublayer is unable to correctly receive one or more RLC PDUs making up the RLC SDU. page 2, paragraph [0017]

As compared to the limitations of claim 1, which are directed to the coordination of separate ARQ operations of the physical layer and of the link layer, Suumaki is concerned with management of the PDCP sublayer by the RLC sublayer and by error reporting to the PDCP sublayer by the RLC layer. All of these operations occur within the link layer. For these reasons, Suumaki (or any of the other cited references) fails to anticipate claim 1 and claim 1 is allowable over Suumaki and the other cited references. Claims 2-5 are allowable for at least these same reasons. Independent claim 11 is a wireless receiver claim having same/similar

10

BEST AVAILABLE COPY

limitations to those of claim 1 and is allowable for these same reasons. Claims 12-16 depend from claim 1 and are allowable for at least these same reasons.

Amended dependent claims 2 and 12 include limitations directed toward the delay period employed by the link layer. As required by claims 2 and 12, the delay period corresponds to N

5 retransmission attempts by the physical layer to successfully receive a physical layer frame containing the lost packet data unit, wherein N is an integer. These additional limitations are neither disclosed nor suggested by Suumaki or the other cited references and these claims are allowable for these additional limitations as well.

Amended independent claims 6 and 17 are directed to a method for operating a wireless

10 transmitter and to a wireless transmitter, respectively, and include limitations similar to those of wireless receiver claims 1 and 11, respectively. Independent claims 6 and 17 have been amended to include specificity regarding the interaction of ARQ operations of the physical layer of the wireless transmitter and ARQ operations of the link layer of the wireless transmitter. In particular, these claims now include limitations that require delaying link layer recovery

15 operations for the lost packet data unit until the link layer determines that plurality of retransmission attempts of the physical layer for the lost packet data unit have been unsuccessful. Further, these claims require that the link layer initiate error recovery operations for the packet data unit that is lost after determining that the plurality of retransmission attempts of the physical layer for the lost packet data unit have been unsuccessful. These limitations of amended claims 6 and 17 are neither

20 disclosed nor suggested by Suumaki or the other cited references. Thus, claims 6 and 17 are allowable. Dependent claims 7-10 and 18-21 depend from claims 6 and 17, respectively, and are allowable for these same reasons.

All claims are now allowable and a notice of allowance is courteously solicited. Please direct any questions or comments to the undersigned attorney.

11

BEST AVAILABLE COPY

Respectfully submitted,

Date: July 31, 2004   By: _____
                                Bruce E. Garlick, Reg. 36,520

Garlick, Harrison & Markison, LLP
P.O. Box 160727
Austin, TX 78716-0727
(512) 264-8816
(512) 264-3735 fax

12